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SPOTTED WILT OF TOMATOES

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Inquiries have been recently received in regard to tomato plants attacked by the above disease. As there is some evidence that the disease is widespread, the following notes will probably be of interest to growers.

The first evidence of attack appears on the young terminal leaves. Affected leaves show a brownish discoloration of the upper surface. If held up to the light numerous brown or black spots may be seen between the main veins. These spots later become quite apparent on the upper surface and, to a lesser extent, on the under surface. The spots may run together until the leaf becomes opaque, except on the main veins. The veins are only attacked to a slight extent and usually remain light in colour until they become involved in the death of the leaf. In the early stages, injury to the leaf is confined to the upper surface only. Brown streaks also appear on the stems and leaf stalks. Strong vigorous plants appear most subject to attack and may develop spots, wilt and die in a couple of days. In other cases the disease may develop slowly. Usually, however, the plant eventually wilts, and, in the majority of cases, dies. Fruit, if attacked, may develop brown spots more or less sunken and the flesh beneath may be injured and discoloured. Diseased fruits, as a rule, fall, or, remaining on the plant, do not ripen, or colour only in parts. Young fruits on diseased plants turn brown, shrivel and fall.

This disease has only been known in Australia since about 1917, and was first described and named by Mr. Brittlebank, Government Pathologist, in Victoria in 1919. No cause has been found for the trouble, which has been responsible for serious losses some seasons in the Eastern States, particularly in Victoria. The prevalence of the disease varies greatly in different years. In this State its presence has been overlooked, or rather, confused with sleepy sickness, another form of wilt.

In spite of various claims made from time to time no definitely successful treatment has been devised. Spraying with standard fungicides, such as Bordeaux Mixture, and with various proprietary preparations have given negative results. The most successful results were obtained at Burnley, in Victoria, by growing plants under an insect-proof cheese cloth cover. Twenty-two plants so covered produced an average of one case each of sound marketable fruit, as against one case from 132 plants not protected, of the same varieties planted in the same rows, at the same time, with seedlings raised under the same conditions.

The following observations have been made in regard to the incidence of the disease :—

1. Plants attacked early in the season usually die. Plants attacked late frequently recover and then grow normally. Late sown plants are not as subject as early sown.
2. Staked and pruned plants frequently are less attacked than unstaked plants.
3. Plants shaded from the afternoon sun and protected from wind are usually less affected than more exposed plants.
4. Plants grown under insect-proof cheese cloth shelters have been found to be very free from attack when similar but unprotected plants have suffered badly.

5. The small egg and cherry tomatoes are not affected.
6. Pruning of affected parts and spraying appear to have little effect in controlling the disease.

On general principles, until better advice can be given, growers are advised in affected localities to stake their tomatoes and to grow them in sheltered situations, giving an occasional precautionary spray with lime sulphur wash if the disease appears.

Spraying, though probably of little direct value, may serve to check other diseases such as leaf-spot, and to keep small sucking insects such as aphis away.

Some investigators are of the opinion that the disease is caused by sucking insects. Diseased plants which are unlikely to recover should be pulled up and burnt.

As a wilt known as "sleepy sickness" is not uncommon, and may be mistaken for spotted blight, the following table is given to enable them to be distinguished :—

	Spotted Wilt.	*Sleepy Sickness.*
Roots	Normal	Rotten or black inside.
Stems	Normal	Dark ring around inside, seen if affected stems are cut across.
Leaves	Upper leaves first affected. Dark upper surface, then spots develop in tissue, seen if held up to light. Leaves darken, wilt and die.	Lower leaves first affected, turning yellow, wilting of branches follows. Leaves not spotted.
Fruit	Usually falls or delayed in ripening.	Ripen while quite small.

Sleepy sickness being caused by a fungus, which attacks the plants from the soil, the following control measures are advised :—

1. Destroy, by burning, affected plants and all old plants which have finished fruiting.
2. Do not plant on the same ground more than one year in three, or following potatoes, if disease is known to have been present.
3. Do not use again seed beds in which diseased plants have been raised. If disease was prevalent in previous crops, give seed bed a dressing of fine slaked lime and powdered bluestone, 10 parts to 1, at the rate of 1 ounce per square foot, and rake well in. This can also be applied to plants after planting out.
4. Dip roots of seedlings, when transplanting, in a solution of bluestone, 1oz. to 3 gallons of water, taking care to wet the roots only.

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